Willow Creek Dike and Road Realignment
Environmental Assessment
EA No. OR-030-99-008

BLM OFFICE: Vale

PROPOSED ACTION: Close the existing riparian road along Willow Creek and provide an alternate route; build a dike to divert water away from the Hot Springs road; and rehabilitate the Hot Springs road.

LOCATION OF PROPOSED ACTION: 1/4 mile upstream from Willow Creek Hot Springs, T37S R38E SW NE Sec 16.

DATE: 15 January 1999

NEED FOR THE PROPOSED ACTION

The need for the proposed action is to prevent "take" of a federally threatened fish species by closing a public road in the floodplain of Willow Creek. Because of recent increases in woody riparian vegetation, sediment entrapment, and beaver activity, the water table in Willow Creek has risen and a portion of the stream has been captured by an unimproved road located in the riparian zone. Lahontan cutthroat trout (LCT) that follow the diverted flow could be stranded on the road and die, constituting "take" of a threatened species. The specific objectives of the proposed action would be to close the unimproved road segment along the creek, allowing the creek to widen its floodplain, and to construct a low dike to prevent further stream capture and fish stranding. Traffic would be rerouted to an existing ridge road outside of the stream basin.

As part of this action, repairs and rehabilitation are needed for the Willow Creek Hot Springs road which is contiguous with the riparian road described above. Stream water captured by the riparian road has intersected the Hot Springs road and flowed along it, scouring and rutting approximately 1.1 road miles. The Hot Springs road carries recreationists to the Willow Creek Hot Springs campground and receives a relatively high volume of vehicles ill-prepared for rough passage. Consequently, travellers have blazed new tracks through the sagebrush to avoid deep ruts. The specific objectives of this second action would be to reconstruct the road so that drainage and soil stabilization are adequate and degree of safety acceptable. The original road alignment would be recovered. This restored road would be resistant to water damage and would eliminate the proliferation of side detours.

CONFORMANCE WITH APPLICABLE LAND USE PLAN

This proposed action is subject to the following land use plans:

Southern and Northern Malheur Management Framework Plan (MFP)(1983)
Southern Malheur Grazing Management EIS Record of Decision (ROD)(1983)
Whitehorse Butte Allotment Evaluation (1996)

The proposed action conforms with the terms and conditions of these land use plans as required by 43 CFR 1610.5. Specifically for the MFP, the proposed action is in conformance with the following

objectives: (1) to manage habitat populated by threatened/ endangered species in a manner that will favor perpetuation and expansion of those species; (2) to maintain Willow Creek riparian areas by restricting potentially destructive activities such as road construction or use; (3) to improve habitat through resolving existing conflicts; (4) to restore, maintain, or improve riparian vegetation and stream channel areas to achieve good to excellent condition.

A portion of the proposed action will occur on private land owned by Whitehorse Ranch. Section 124 of the Omnibus Consolidated Appropriations Act of 1997 (PL 104-208) provides the framework by which BLM may enter into agreements with private landowners for restoration and enhancement of fish, wildlife, and other biotic resources on private land that benefit these resources on public lands within the watershed.

RELATIONSHIP TO STATUTES, REGULATIONS, OR OTHER PLANS

The Endangered Species Act (Section 4 (d)) of 1973 prohibits any act that takes a threatened species. The ESA provides that the term "take" means to "harass, harm, pursue, hunt, shoot wound, kill, trap, capture, or collect." The diversion of water and subsequent entrapment of trout by a BLM-maintained road constitutes such an action by harming or killing Lahontan cutthroat trout. In addition, the ESA (Section 7(a)(2) prohibits all actions authorized, funded, or carried out by the federal government that jeopardize the continued existence of any federally listed species. Consequently, consultation with US Fish and Wildlife Service on this EA will be required to ensure that actions proposed herein do not adversely affect the trout.

The Recovery Plan for Lahontan Cutthroat Trout (USFWS 1995) specifies riparian conditions, such as developing floodplains and diverse channel characteristics, that benefit the species. The proposed action would improve floodplain function by eliminating riparian roads and unnatural water diversions.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

A. Proposed Action---*Construct a dike, close Willow Creek riparian road, rehabilitate the Hot Springs road*

Construct a low dike approximately 325' long in order to intercept and redirect stream flow that has been captured by a deeply rutted BLM riparian road (see map). The dike would follow a low dry terrace that parallels Willow Creek and would be situated 250 feet east of the current stream channel and 100' east of the riparian road. At the downstream end where most flow diversion is occurring, the dike would be about 4' high, 12' wide at its surface, and 28' wide at its base, and would intersect the riparian road at that point. At its upstream end, the dike would angle toward the existing road and taper to less than 1' high, 12' wide at its surface, and 15' wide at its base. Rock and gravel fill obtained from Willow Creek Community Pit would be laid down using the dike surface as a progressive roadway for construction vehicles, with a vehicle turnaround (150' diameter) at each end of the dike. No blading would occur, and trucks and fill would not enter the riparian area of Willow Creek. The riparian road from its intersection with the dike to the Little Whitehorse Creek cutoff (2.8 miles) would be abandoned and allowed to fill in naturally as Willow Creek continues to aggrade and meander. The dike would impede but not necessarily block access to the riparian road at its downstream end. A barrier and a sign redirecting traffic would be installed at the point where the riparian road is closed. An existing upland road east of Willow Creek

would be reestablished as the main route between the Hot Springs and upper Willow Creek. A cultural resource inventory and mitigation of adverse effect, if any, would be required before the upland road can be improved.

In addition to dike construction, the BLM would rehabilitate 2.1 miles of the Willow Creek Hot Springs road that was damaged by captured stream flow. Maintenance would consist of filling ruts with gravel drawn from Willow Creek Community Pit, grading of the ditch line, and placement of three culverts in low areas. The road surface would be 16' wide and the total width of ground disturbance would be 24'. Plant cover in the work area would be disturbed or removed.

Alternative B.---*No Action.*

The dike would not be constructed, the Hot Springs road would not be rehabilitated, and the Willow Creek riparian road would remain open to traffic.

Alternative C.---*No dike, rehabilitate the Hot Springs road, close Willow Creek riparian road after filling low spots*

The dike would not be constructed, but water-scoured ruts in the Willow Creek riparian road would be filled with rock and gravel and the road surface built up to the level of the surrounding ground. Equipment would not leave the existing road surface and no blading or surface disturbance would occur. The Willow Creek riparian road would be closed and an alternate route would be provided. A berm would be constructed across the road to impede vehicular access to the riparian corridor. Willow Creek would be left to establish a "natural" course as its water table rises.

As in Alternative A, the BLM would rehabilitate 2.1 miles of the Willow Creek Hot Springs road that was damaged by captured stream flow. Maintenance would consist of filling ruts with gravel drawn from the Whitehorse Road quarry, some grading of the ditch line, and placement of three culverts in low areas. Plant cover in the work area would be disturbed or removed.

AFFECTED ENVIRONMENT

Willow Creek is located in the Trout Creek Mountains of Jordan Resource Area, Vale District. Willow Creek is isolated from other drainage basins, originating at 7000' and flowing north for 25 miles before terminating in Coyote Lake playa. Although Willow Creek flows through a steep, constrictive canyon for much of its length, it enters a wide valley with <1% gradient at the site of the proposed action.

The area is semi-arid with cool, moist winters and hot, dry summers. Average precipitation ranges from 8-20 inches, with about half falling as snow from November through February. Peak stream flow is in late winter and early spring from snow melt and rain, with approximately 75% of total annual discharge occurring between February and June. Brief but heavy runoff may also occur in summer from localized thunderstorms.

Soils in valley areas along Willow Creek have a loamy to clayey texture and are deep, well drained, and highly erodible.

ACECs--The ROD established the Whitehorse Basin Area of Critical Environmental Concern (ACEC) on Willow Creek in 1983. The relevant and important resource was habitat for the "Willow/Whitehorse" cutthroat trout, a species thought to be unique to the basin. However, in 1991 the Willow/Whitehorse cutthroat trout was classified as Lahontan cutthroat trout which are protected under the Endangered Species Act (ESA). BLM initiated management through Section 7 consultation rather than through an ACEC plan, and consequently an ACEC plan was never developed. The objectives of the proposed action are consistent with management intended for the Whitehorse Basin Area ACEC.

Water Quality--Willow Creek has been identified as a water quality limited stream by Oregon Department of Environmental Quality (June 1996) for summer temperature. Seven day running average maximum temperatures in Willow Creek exceed the State standard of 64° F. Although stream temperatures are in compliance in the headwaters, lowland reaches are warmer. Other water quality parameters, such as dissolved oxygen, *E. coli*, or presence of pesticides, are not recognized as problems in Willow Creek.

Riparian Areas--The project site is contained within Red Mountain South Pasture, a 28,000 acre area in the Whitehorse Butte Allotment. Livestock in this pasture are managed so that riparian areas along Willow Creek are protected and enhanced.

Although historic grazing practices prior to 1985 caused deterioration of riparian resources and hydrologic function in Willow Creek basin, riparian restoration has occurred under current livestock management. Severely eroded banks have revegetated, abundance and height of woody species (such as willows and alders) have increased, and beavers have returned. The site of the proposed action is located in the lower basin where stream gradient decreases and the valley widens. Improvements in riparian condition and complexes of beaver dams have trapped large amounts of sediment at this point, resulting in the highest water table in many years. Some out-of-bank flow was captured by the road system during spring runoff in April 1996, but when flooding ended in late spring the flow returned to its original channel. In October 1997 a portion of the stream was again diverted by the road system, and despite seasonal variations in discharge water has continued to follow the roadbeds until present.

T&E Species--The only fish to inhabit Willow Creek is the Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) a species listed as threatened under the Endangered Species Act in 1975. The BLM has consulted with US Fish and Wildlife Service over impacts of current grazing plans on the fish in compliance with Section 7 of the ESA. A "no jeopardy" biological opinion for grazing was returned in 1992 and continues to operate.

Response of herbaceous and woody riparian vegetation to management changes has been remarkable, and upland vegetation has also shown improvement. In 1994, Oregon Department of Fish and Wildlife estimated the number of Lahontan cutthroat trout in Willow Creek to be about 15,000 fish, an increase from past years that was attributable to improved riparian management and cessation of drought. Although some instream habitat remains marginal, current grazing practices appear to be compatible with riparian recovery and improving fish habitat.

Wildlife--A diversity of plant communities in Willow Creek basin creates good habitat for many wildlife species. Mammals include mule deer, California bighorn sheep (reintroduced), mountain lions, coyote, black-tailed jackrabbit, and beaver. Sage grouse, chukar partridge, golden eagles, ravens, and sage sparrows primarily inhabit the uplands. The highest density and diversity of species occurs in riparian

areas. Within the last three years, riparian obligates and wetland species, such as yellow warblers, black crowned night herons, Virginia rails, and beaver, have colonized or increased in abundance as Willow Creek water table rises and inundates wider areas.

Recreation--Recreation in the project area is concentrated at Willow Creek Hot Springs and is increasing. Between 1991 and the present, visits to the hot springs have doubled, averaging about 3000 per year. Although use increase is significant, impacts from recreation have decreased due to greater effort by BLM to educate visitors and control use. Dispersed recreational activity in the area has not shown comparable increases. Hunting has declined, and hiking or backpacking use has remained low. Willow Creek is closed to angling.

The project area is designated Visual Resource Management Class IV, which allows managements activities requiring major modification of the existing character of the landscape.

No Wilderness Study Areas occur in the project area.

Cultural--The proposed dike and road improvement lie entirely within the administrative boundaries of a very large prehistoric site in the Willow Creek floodplain. The on-the-ground dimensions of the site are not clear, but its surface area is thought to exceed 3 square miles. American Indians probably camped there during the winter, taking advantage of the area's hot springs and relatively mild winter climate. Diagnostic materials indicate the site was occupied from about 9000 years before present until European Contact. There is some evidence of buried cultural materials in the aggrading floodplain.

Several cultural resource inventories have been conducted near or within the area of interest. An inventory of about 20 acres surrounding the spring produced no cultural materials of note. In the vicinity of the hot spring, surface material consisting primarily of obsidian debitage, or flakes, has been picked over by artifact gatherers. An archeologist monitored excavation for a vault toilet installed at the recreation area, and no buried cultural materials were noted. Several years ago, an archeologist conducted a cultural resource inventory of the access road from about 0.2 mile southeast of the spring to its junction with the Whitehorse Road. No significant cultural materials were found. With the exception of the immediate vicinity of the spring, the eastern margin of the site does not appear to have been heavily used by prehistoric people.

The ridge road that would replace the riparian road is outside the site boundary, and its alignment has not been inventoried.

Native American Religious Concerns--The project area has been heavily used and much altered by cattlemen since the turn of the century, and is increasingly used and altered by recreationists. There is no suggestion this part of Willow Creek and the surrounding lands has now, or has ever had, any religious significance to American Indians, nor does it appear to be a traditional use area in the current sense of the term.

ENVIRONMENTAL IMPACTS

A. Impacts of Proposed Action

Construction of a dike across the Willow Creek riparian road would block stream flow captured by the eroded road surface and deflect most of the water back to the main channel. This would eliminate the artificial formation of channels or playas caused by the presence of a BLM-administered road. LCT would not be stranded on roadways and result in take of a threatened species. Closing the riparian road paralleling the stream and positioning the dike 250 feet distant from the stream channel would allow Willow Creek to expand into an additional 1.2 acres as water tables rise. Although this area currently supports upland vegetation such as sagebrush and Great Basin wild rye, higher water tables, ponding by beavers, and elimination of artificial diversions could increase flows and convert the additional acres to floodplain or wetland. Additional wetlands along Willow Creek would dissipate stream energy associated with high flows, improve floodwater retention and groundwater recharge, and develop diverse ponding and channel characteristics that provide fish and wildlife habitat.

Closing the riparian road paralleling the stream would also benefit fish habitat by eliminating sources of sediment and reducing compaction and erosion of the riparian area. It would reduce vehicular access to this reach of Willow Creek, thereby decreasing disturbance to fish and wildlife but causing inconvenience to ranchers and recreationists. However, the alternate upland route would provide access to upstream destinations.

Rehabilitation of the Willow Creek Hot Springs road would have immediate impact along the roadway. A "new construction" effect would result from blading the ditch area and from fill. Minor debris from these activities would be spread adjacent to the roadway causing the road to have the appearance of greater width than it actually has. Because of the road's distance from the stream (1200' at the nearest point) and flatness of topography, it is unlikely that this debris would reach Willow Creek and cause siltation problems affecting LCT.

Removal of plant cover along the road would increase the potential for establishment of weedy species, but reseeding with desirable species would reduce the likelihood of infestation by exotics.

Rehabilitation of the Hot Spring road would improve access to the hot springs and may increase recreational use and traffic. More visitors could increase disturbances to fish, wildlife, and riparian areas, and increase litter and fire danger in this small area. However, the new roadway would alleviate off-road vehicle routes around impassible sections and the destruction of vegetation and wildlife habitat.

Construction of a dike to divert water from the road would not affect cultural resources. Dike fill material would be placed directly on undisturbed ground. The State Historic Preservation Office (SHPO) concurred with the "no effect" determination in an early December memo to the BLM archeologist.

Cultural resources would benefit if the riparian road were closed. Multiple tracks leading around ruts and craters in the road have disturbed the ground and the artifacts on its surface.

Improving the road from the hot spring to the Whitehorse Road would not affect cultural resources. An inventory extending to 50 feet either side of centerline was conducted several years ago, the judgment was "no effect," and the SHPO concurred.

B. Impacts of No Action

Under this alternative, no dike would be built, the riparian road would remain open, and the Hot Springs

road would not be repaired. As, with time, the Willow Creek water table continues to rise, increasing amounts of water will be captured by the riparian road and diverted down the Hot Springs road. These roads will continue to erode, forming an artificial ditch system channeling stream water away from Willow Creek and out into the desert. LCT would be stranded, causing take of a threatened species, and Willow Creek wetlands and riparian areas would be unnaturally dewatered. Travelers on the riparian road would drive around flooded areas, proliferating off-road-vehicle routes, compacting floodplain soils, and destroying riparian vegetation, cultural resources, and wildlife habitat. Travelers on the Hot Springs road would also blaze off-road routes around impassible areas and destroy vegetation, cultural resources, and wildlife habitat. Because demand for recreational access is great on the Hot Spring road, deteriorating road conditions may cause accidents and pose safety concerns.

C. Impacts of Alternative Action

Under this alternative, no dike would be constructed, but water-scoured ruts in the Willow Creek riparian road would be filled with rock and gravel and the road surface built up to the level of the surrounding ground. The riparian road would be bermed and closed, and the Hot Springs road repaired.

Providing fill for the riparian road would have few negative impacts on resources. No blading or surface disturbance would occur to contribute sediment to the stream. Dust from the operation may drift into the stream, but any effects on water quality would be minor and of short duration. Impacts of Hot Springs road repairs would be the same as for the Proposed Alternative. Cultural resources, as noted previously, would not be affected.

Willow Creek would be left to establish a "natural" course as its water table rises. Filling the riparian road would retard, but not eliminate, stream capture by the road system. As long as the creek flow remains in areas where it is able to rejoin the main channel, habitat beneficial to wildlife and LCT will form. However, if high flows reach the intersecting Hot Springs road or low areas adjacent to it, water will be permanently diverted from the historic stream channel, resulting in take of a threatened fish through stranding, and unnatural dewatering of riparian areas and wetlands. High flows would damage the Hot Springs road, impeding recreational access and causing safety concerns.

Although the Willow Creek riparian road would be officially closed and an alternate route provided, traffic would likely continue in the riparian corridor. Without the dike as a partial barrier and with low places filled in, the riparian road would be easily accessible to vehicles. Impacts to resources from riparian road traffic would be similar to those for the No Action alternative.

CRITICAL ELEMENTS

The following resources were all considered in preparation of this EA:

Element	AFFECTED	
	NO	YES
Air Quality	X	
Cultural Resources/Native American Religious Concerns	X	
ACECs	X	
Wild & Scenic Rivers	X	

Wilderness	X	
T&E Species		X
Prime/Unique Farmlands	X	
Riparian Areas/Wetlands		X
Floodplains		X
Water Quality	X	
Hazardous/Solid Wastes	X	

DESCRIPTION OF MITIGATION MEASURES AND RESIDUAL IMPACTS

Disturbance or removal of plant cover along the road and dike would increase the potential for establishment of weedy species, but reseeding with desirable species would reduce the likelihood of infestation by exotics. Immediately following project completion, all disturbed areas would be seeded with a mix of native grass, forb, and shrub species appropriate for the site. Preferred species would include: squirreltail (*Sitanion hystrix*), Sandberg's bluebunch (*Poa sandbergii*), inland saltgrass (*Distichlis stricta*), basin wildrye (*Elymus cinereus*), and sage (*Artemisia tridentata*).

It would be expected that revegetation would occur rapidly in seeded areas with moist soil, such as the two turnarounds near the dike and portions of the dike itself. Silt deposits and riparian regrowth resulting from two to three seasons of normal spring runoff could obliterate most signs of disturbance and preclude weed invasion. Revegetation would be slower in drier saltbrush flat areas along the Hot Springs road, and would depend on precipitation.

PERSONS/AGENCIES CONSULTED

US Fish and Wildlife Service--Doug Young, Bend
Section 7 consultation to ensure that the proposed actions do not adversely affect Lahontan cutthroat trout

Oregon Department of Fish and Wildlife--Wayne Bowers, Hines
Concurred with need for the proposed action

Whitehorse Ranch Inc.--Britt Lay, manager
Granted access to private land for implementation of proposed action

BLM STAFF SPECIALISTS

Tom Forre - Rangeland Management Specialist
Alice Bronsdon - Archeologist
Jon Sadowski - Wildlife Biologist
Cynthia Tait - Fisheries Biologist
Jack Wenderoth - Hydrologist
Shaney Rockefeller - Soils
Jeff Wilbanks - Recreation

FINDING OF NO SIGNIFICANT IMPACTS

I have reviewed this EA and have determined that the proposed action with mitigating measures will not have any significant impacts on the human environment and that an EIS is not required. I have determined that the proposed project is in conformance with the land use plan.

S/Jerry L. Taylor *01/15/99*
Authorized Official Date

DECISION RECORD

I have determined that implementation of the proposed action and mitigation (EA OR-030-99-008) in Whitehorse Butte allotment to authorize (1) closing a riparian road along Willow Creek and establishment of a new route, (2) constructing a dike to divert water away from Hot Springs road, and (3) rehabilitating the Hot Springs road is in conformance with the land use plan for Jordan Resource Area and is necessary to protect resource values as described in this EA. Because of exceedingly wet surface conditions, the following modification will be applied:

> Portions of the access road and the entire length of the dike will be underlaid with 12' wide fabric mesh which will prevent mixing of overlying fill with saturated soils. The mesh will prevent subsidence of the road and dike surface and protect the integrity of any subsurface cultural resources that may exist.
>
> The new route that will replace the riparian road follows an old established road. This old road traverses the edge of a playa which may seasonally be saturated. In order to avoid negative impacts to the playa, the route will be detoured 20' west to higher ground for a distance of 100' whereupon it will rejoin the established roadway. Inventory has shown that the detour route will not negatively impact cultural resources.

In accordance with the Endangered Species Act (Section 7), consultation with the U.S. Fish and Wildlife Service on the proposed action has been completed with the Service's concurrence that these actions will not adversely affect Lahontan cutthroat trout.

S/Jerry L. Taylor — *03/19/99*

Authorized Official — Date